

Name: _____

Date: _____

A2 CC-1 Multiplying Radicals

Warm Up: Perform the indicated operations.

1. $3\sqrt{8} + \sqrt{18}$

2. $a\sqrt{5a} + 3\sqrt{45a^3}$

Express each of the following products in simplest form:

1. $\sqrt{5}(\sqrt{10})$

2. $(3 + \sqrt{6a})(1 + \sqrt{2a})$

Developing Skills

In 3–41, express each product in simplest form. Variables in the radicand with an even index are non-negative.

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|---|--|---|
| 3. $\sqrt{2} \cdot \sqrt{8}$ | 4. $\sqrt{5} \cdot \sqrt{45}$ | 5. $\sqrt{3} \cdot \sqrt{27}$ |
| 6. $\sqrt{8} \cdot \sqrt{12}$ | 7. $-\sqrt{10} \cdot \sqrt{18}$ | 8. $3\sqrt{2} \cdot \sqrt{10}$ |
| 9. $\sqrt{\frac{1}{3}} \cdot \sqrt{24}$ | 10. $\sqrt{21} \cdot \sqrt{\frac{4}{3}}$ | 11. $8\sqrt{6} \cdot \sqrt{\frac{5}{12}}$ |
| 12. $(\sqrt{12})^2$ | 13. $(3\sqrt{3})^2$ | 14. $(-2\sqrt{5})^2$ |
| 15. $\sqrt{x^3} \cdot \sqrt{4x}$ | 16. $2\sqrt{ab} \cdot 2\sqrt{ab^2}$ | 17. $\sqrt{5y} \cdot \sqrt{4y^3}$ |
| 18. $\sqrt{x^5y^3} \cdot \sqrt{3xy}$ | 19. $7\sqrt{a} \cdot 5\sqrt{\frac{a}{9}}$ | 20. $\sqrt{\frac{x}{2}} \cdot \sqrt{\frac{x^2}{2}}$ |
| 21. $\sqrt{\frac{a}{3}} \cdot \sqrt{\frac{a^2}{4}}$ | 22. $\sqrt[3]{2} \cdot \sqrt[3]{4}$ | 23. $\sqrt[3]{15a^2} \cdot \sqrt[3]{9a^4}$ |
| 24. $\sqrt[4]{27} \cdot \sqrt[4]{3}$ | 25. $\sqrt{2}(2 + \sqrt{2})$ | 26. $\sqrt{5}(1 - \sqrt{10})$ |
| 27. $\sqrt{8}(6 + \sqrt{2})$ | 28. $\sqrt{5a}(\sqrt{5a} - 3)$ | 29. $\sqrt{12xy^3}(\sqrt{3xy} + 3)$ |
| 30. $(1 + \sqrt{5})(3 - \sqrt{5})$ | 31. $(9 + \sqrt{2b})(1 + \sqrt{2b})$ | 32. $(7 + \sqrt{5y})(3 - \sqrt{5y})$ |
| 33. $(7 + \sqrt{5b})(7 - \sqrt{5b})$ | 34. $(x - \sqrt[4]{3y})(2x - \sqrt[4]{3y})$ | 35. $(\sqrt{6} + 6)(\sqrt{6} - 7)$ |
| 36. $(\sqrt{6} + 6c)(\sqrt{6} - 6c)$ | 37. $(a + \sqrt{b})(a - \sqrt{b})$ | 38. $(1 - \sqrt{3})^2$ |
| 39. $(3 + \sqrt{5ab^3})^2$ | 40. $(1 - \sqrt{7})(1 + \sqrt{7})(1 + \sqrt{7})$ | 41. $(2 - \sqrt{5})(2 + \sqrt{5})^2$ |

Applying Skills

42. The length of a side of a square is $48\sqrt{2}$ meters. Express the area of the square in simplest form.
43. The dimensions of a rectangle are $12\sqrt{2}$ feet by $\sqrt{50}$ feet. Express the area of the rectangle in simplest form.